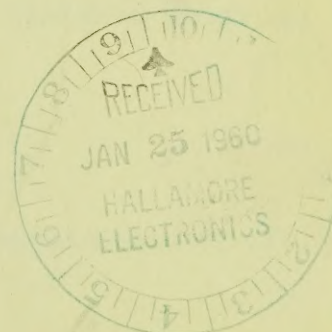


NOTICE OF CHANGE

REVISION LETTER A

Para. 4.1.1(b) - IS: 50-ohm
WAS: 20-ohm



Prepared	<i>R. Westrup</i> R. Westrup	DATE	12 NOV 9	SPECIFICATION ACCEPTANCE TEST TIME PULSE GENERATOR	LOCKHEED AIRCRAFT CORPORATION <small>MISSILE SYSTEMS DIVISION</small> <small>SUNNYVALE, CALIF.</small>
Approved	<i>H. Massey</i> H. Massey	"			
Approved	<i>D. McClary</i> D. McClary	"			
Approved					
				1072502 SHEET 1 OF 1	

1. SCOPE

1.1 This specification defines the minimum performance and procedural requirements for the acceptance testing of a Time Pulse Generator manufactured per LMSD dwg. 1500800.

2. APPLICABLE DOCUMENTS

LMSD DRAWINGS

1500800 Time Pulse Generator

3. REQUIREMENTS

3.1 Input power: 115 \pm 10 volts, 60-cycle, single-phase, 2 amperes.

3.2 Test Conditions: (Environmental)

(a) Temperature: 77 \pm 18°F (25 \pm 10°C)

(b) Relative Humidity: 90% max

(c) Barometric Pressure: 28 to 32 in. Hg

3.3 Tolerances: When no tolerance is specified, a tolerance of \pm 5% shall apply.

3.4 Warm-up: A ten-minute warmup period shall be allowed prior to tests.

3.5 Suggested Test Equipment

(a) Oscilloscope, general purpose

(b) Sinewave oscillator

(c) Acoustical transducer (any speaker or headphone which has 300 ohms or higher impedance).

(d) Power supply, 20 volts

(e) Battery, 1.5 volt

(f) Other equipment as necessary to meet requirements of par. 4.2 (e).

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Prepared	R. Westrup	DATE	20 Jul 9	SPECIFICATION TYPE ACCEPTANCE TEST TITLE TIME PULSE GENERATOR	LOCKHEED AIRCRAFT CORPORATION MISSILE SYSTEMS DIVISION SUNNYVALE, CALIF. 1072502 SHEET 1 OF 9
Approved	H. Massey	"	"		
Approved	D. McClary	"	"		
Approved					

4. TESTS

NOTE - Tests shall be performed
in the order presented.

4.1 Amplifier

4.1.1 ✓ Gain

- (a) TIME BASE SELECTOR switch on BASE TIME.
- (b) Attach a 50-ohm resistive load between pins 33 and 34 of connector J4401.
- (c) TWC GAIN control (on chassis) full clockwise.
- (d) Apply a 1000-cycle signal to pins 31 and 32 of connector J4401.
- (e) Adjust signal (d) amplitude to produce a potential across the load resistor of 1 volt rms.
- (f) The ratio of the measured output voltage to the input voltage
$$\frac{\text{Output}}{\text{Input}} = \text{gain}$$
 shall be 2, minimum.
- (g) Remove the resistive load (b).

4.2 Amplifier/Demodulator

- (a) TIME BASE SELECTOR switch on BASE TIME.
- (b) 1 PPS GAIN control (on chassis) full clockwise.
- (c) Press RESET.
- (d) Press START.
- (e) Apply a signal having the following characteristics to pins 29 and 30 of connector J4401:
 - 1000-CPS bursts, 10 to 50 ms duration.
 - one-burst-per-second repetition rate,
 - 500-mv, peak-to-peak amplitude
- (f) Front panel time indication shall advance.

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4.3

Six-to-One Divider and Decade Counters

- (a) TIME BASE SELECTOR switch on POWER LINE.
- (b) Press RESET.
- (c) Press START.
- (d) Panel time indicator shall advance 600 counts per minute.
- (e) During the above counting, par. (d), each decade counter shall advance one count for each 10 counts of the preceding counter.

4.4

Electrical Start-Stop-Reset Test

- (a) TIME BASE SELECTOR switch on POWER LINE.

4.4.1

Start Circuit

- (a) Set START POLARITY switch on '+!.
- (b) Press RESET.
- (c) Apply a + 20 volt pulse, having a duration of 20 ms, min, and a rise time of 1 ms, max, between pin 34 (ground) and pin 1 of J4401.
- (d) Front panel time indicators shall advance.
- (e) Set START POLARITY switch on '-!.
- (f) Press RESET.
- (g) Apply a - 20 volt pulse, per par. 4.4.1(c) except for polarity.
- (h) Front panel time indicators shall advance.

4.4.2

Stop Circuit

- (a) STOP POLARITY switch on '+!.
- (b) Press RESET.
- (c) Press START.
- (d) Apply a + 20 volt pulse, having a duration of 20 ms, min, and a rise time of 1 ms, max, between pin 34 (ground) and pin 2 of J4401.
- (e) Advancement of front panel time indicators shall stop.
- (f) Set STOP POLARITY switch on '-!.

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Section 1: General Information

(a) The first part of the report is a general statement of the facts.

(b) The second part of the report is a statement of the results.

(c) The third part of the report is a statement of the conclusions.

(d) The fourth part of the report is a statement of the recommendations.

(e) The fifth part of the report is a statement of the summary.

Section 2: Detailed Information

(a) The first part of the report is a statement of the facts.

(b) The second part of the report is a statement of the results.

(c) The third part of the report is a statement of the conclusions.

(d) The fourth part of the report is a statement of the recommendations.

(e) The fifth part of the report is a statement of the summary.

(f) The sixth part of the report is a statement of the summary.

(g) The seventh part of the report is a statement of the summary.

(h) The eighth part of the report is a statement of the summary.

(i) The ninth part of the report is a statement of the summary.

(j) The tenth part of the report is a statement of the summary.

Section 3: Conclusions

(a) The first part of the report is a statement of the facts.

(b) The second part of the report is a statement of the results.

(c) The third part of the report is a statement of the conclusions.

(d) The fourth part of the report is a statement of the recommendations.

(e) The fifth part of the report is a statement of the summary.

(f) The sixth part of the report is a statement of the summary.

(g) Press START.

(h) Apply a - 20 volt pulse, per par. 4.4.2(d) except for polarity.

(i) Advancement of front panel time indicators shall stop.

4.4.3

Reset Circuit

(a) Press START.

(b) Apply a + 20 volt pulse, having a duration of 50 ms, min, and a rise time of 1 ms, max, between pin 34 (ground) and pin 3 of J4401.

(c) Front panel time indicators shall return to zero and remain there.

4.5

Outputs

(a) TIME BASE SELECTOR switch on POWER LINE.

(b) Press RESET.

4.5.1

Relay Closures

(a) Connect an oscilloscope, in series with a 1.5 volt battery, to pins 7 and 8 of connector J4401.

(b) Press START.

(c) The relay contacts wired to pins 7 and 8 shall close once each second, as indicated on the oscilloscope. Each 10th closure shall be longer than the preceding nine closures. Each 100th closure shall be longer than the preceding 99 closures.

(d) Repeat par. (a) thru (c) but substitute pins 9 and 10.

(e) Repeat par. (a) thru (c) but substitute pins 11 and 12.

(f) Repeat par. (a) thru (c) but substitute pins 13 and 14.

(g) Repeat par. (a) thru (c) but substitute pins 15 and 16.

(h) Repeat par. (a) thru (c) but substitute pins 17 and 18.

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(a) From 1917

(b) From 1918 to 1920, the total number of cases was 100.

(c) From 1921 to 1923, the total number of cases was 150.

(d) From 1924 to 1926, the total number of cases was 200.

(e) From 1927 to 1929, the total number of cases was 250.

(f) From 1930 to 1932, the total number of cases was 300.

(g) From 1933 to 1935, the total number of cases was 350.

(h) From 1936 to 1938, the total number of cases was 400.

(i) From 1939 to 1941, the total number of cases was 450.

(j) From 1942 to 1944, the total number of cases was 500.

(k) From 1945 to 1947, the total number of cases was 550.

(l) From 1948 to 1950, the total number of cases was 600.

(m) From 1951 to 1953, the total number of cases was 650.

(n) From 1954 to 1956, the total number of cases was 700.

(o) From 1957 to 1959, the total number of cases was 750.

(p) From 1960 to 1962, the total number of cases was 800.

(q) From 1963 to 1965, the total number of cases was 850.

(r) From 1966 to 1968, the total number of cases was 900.

(s) From 1969 to 1971, the total number of cases was 950.

4.5.2 Pulse Duration Modulated Voltage Output

- (a) Attach an oscilloscope to pins 34 (grnd) and 4 of connector J4401.
- (b) Press START.
- (c) Output pulses, amplitude - 20 ± 5 volts, shall occur once per second.
- (d) Each 10th pulse shall be longer than the preceding 9. Each 100th pulse shall be longer than the preceding 99.

4.5.3 Amplitude Modulated Voltage Output

- (a) Press START.
- (b) Attach an oscilloscope to pins 34 (grnd) and 33 of connector J4401.
- (c) Output pulses shall occur once each second. Pulse amplitude shall be - 4.5 ± 1 volts. Each 10th pulse shall be - 10 ± 2 volts. Each 100th pulse shall be - 15 ± 2 volts.

4.5.4 Tone Output

- (a) Press START.
- (b) Connect an acoustical transducer between pins 37 and 38 of J4401.
- (c) An audible tone shall occur in bursts, one burst per second. Each 10th burst shall be audibly different from the preceding 9 and each 100th burst shall be audibly different from the preceding 99.

4.5.5 Preset Outputs

4.5.5.1 Preset No. 1

- (a) Connect an oscilloscope, in series with a 1.5 volt battery, to pins 19 and 20 of J4401.
- (b) Set the 5 switches, PRESET NO. 1, to any combination of numbers (other than all at zero).
- (c) Press START.
- (d) A relay closure shall be indicated on the oscilloscope when the preset number appears on the front panel readout.

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(e) Connect oscilloscope, as in (a), to pins 21 and 22 of J4401.

(f) Repeat (b) thru (d).

4.5.5.2 Preset No. 2

(a) Connect an oscilloscope, in series with a 1.5 volt battery, to pins 23 and 24 of J4401.

(b) Repeat par. 4.5.5.1 (b) thru (d) except use PRESET NO. 2 switches.

(c) Repeat (a) and (b) except connect the oscilloscope to pins 25 and 26 of J4401.

4.5.6 Preset Function Switches

4.5.6.1 PRESET NO. 1

(a) Set the 5 switches, PRESET NO. 1, to any combination of numbers.

(b) Set NO. 1 PRESET FUNC SELECTOR switch on STOP.

(c) Press START.

(d) The readout count shall stop when it reaches the preset number.

(e) Press RESET.

(f) Set No. 1 PRESET FUNC SELECTOR switch on RESET.

(g) Press START.

(h) The readout count shall stop and reset when the preset number is reached.

4.5.6.2 PRESET NO. 2

(a) Repeat par. 4.5.6.1 (above) substituting the 5 PRESET NO. 2 switches and NO. 2 PRESET FUNC SELECTOR switch.

5. PREPARATION FOR DELIVERY - None

6. NOTES - None

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TEST DATA SHEET

- 4.1.1(f) The ratio of measured output voltage to the input voltage is 2 min. 5
- 4.2(f) Front panel time indication advances _____
- 4.3(d) Panel time indicator advances 600 counts per minute _____
- (e) Each decade counter advances one count for each 10 counts of the preceding counter _____
- 4.4.1(d) Front panel time indicators advance _____
- (h) Front panel time indicators advance _____
- 4.4.2(e) Front panel indicators stop _____
- (i) Front panel indicators stop _____
- 4.4.3(c) Front panel time indicators return to zero and remain there _____
- 4.5.1(c) Oscilloscope indicates that the relay contacts wired to pins 7 and 8 close once each second. _____
- Each 10th closure is longer than the preceding 9. _____
- Each 100th closure is longer than the preceding 99. _____
- (d) Same as (c) except pins 9 and 10 _____
- (e) Same as (c) except pins 11 and 12 _____
- (f) Same as (c) except pins 13 and 14 _____
- (g) Same as (c) except pins 15 and 16 _____
- (h) Same as (c) except pins 17 and 18 _____

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TEST DATA SHEET

4.5.2(c) Output pulse amplitudes are - 20 ± 5 volts

Pulses occur once per second

Each 10th pulse is longer than the preceding 9 pulses

Each 100th pulse is longer than the preceding 99

4.5.3(c) Output pulses occur once each second

Output pulses amplitude is - 4.5 ± 1 volt

Each 10th pulse is - 10 ± 2 volts

Each 100th pulse is - 15 ± 2 volts

4.5.4(c) Audible tone occurs at one burst per second

Each 10th burst is audibly different from the preceding 9 bursts

Each 100th burst is audibly different from the preceding 99 bursts

4.5.5.1(d) Oscilloscope indicates relay closure when the preset number appears on the front panel

(f) Oscilloscope indicates relay closure when the preset number appears on the front panel

4.5.5.2(b) Oscilloscope indicates relay closure when the preset number appears on the front panel

(c) Oscilloscope indicates relay closure when the preset number appears on the front panel

4.5.6.1(d) Readout count stops when preset number is reached

(h) Readout count stops and resets when the preset number is reached

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4.5.6.2 (d) Readout count stops when preset number
is reached

(h) Readout count stops and resets when preset
number is reached

DATE _____ PLACE _____ UNIT SERIAL NO. _____

OPERATOR _____ INSPECTOR _____ APPROVED _____

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